

WHAT IS CLAIMED IS:

1. A heat-sensitive lithographic printing plate comprising: a support with a hydrophilic surface; and an image-forming layer containing a microcapsule, a light-to-heat converting agent and a water-soluble compound,

wherein the microcapsule contains a reactive group-containing hydrophobic compound, the water-soluble compound has a reactive group capable of reacting with the hydrophobic compound and the image-forming layer contains the water-soluble compound outside the microcapsule.

2. The heat-sensitive lithographic printing plate as described in claim 1, wherein the reactive group in the reactive group-containing hydrophobic compound is an epoxy group or a vinyloxy group, and the reactive group in the water-soluble compound is an epoxy group or a vinyloxy group.

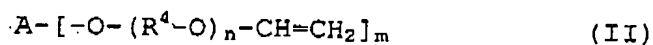
3. The heat-sensitive lithographic printing plate as described in claim 1, wherein each of the reactive group in the reactive group-containing hydrophobic compound and the reactive group in the water-soluble compound is a radical-polymerizable ethylenic unsaturated group.

4. The heat-sensitive lithographic printing plate as described in claim 1, wherein the reactive group-containing

hydrophobic compound has at least two of the reactive groups in the molecule.

5. The heat-sensitive lithographic printing plate as described in claim 4, wherein the reactive group-containing hydrophobic compound has at least two of vinyloxy groups in the molecule.

6. The heat-sensitive lithographic printing plate as described in claim 5, wherein the reactive group-containing hydrophobic compound is a vinyl ether group-containing compound represented by the following formula (II) or (III):



wherein A represents an m-valent saturated hydrocarbon group, aromatic hydrocarbon group or heterocyclic group, B represents -CO-O-, -NHCOO- or -NHCONH-, R^4 represents a straight-chain or branched alkylene group containing 1 to 10 carbon atoms, n represents an integer of 0 to 10, and m represents an integer of 2 to 6.

7. The heat-sensitive lithographic printing plate as described in claim 1, wherein the reactive group-containing hydrophobic compound is a vinyloxy group-containing compound

obtained by reaction of a active hydrogen-containing vinyloxy compound represented by the following formula (IV), (V) or (VI) with an isocyanate group-containing compound:



wherein R^5 represents a straight-chain or branched alkylene group containing 1 to 10 carbon atoms.

8. The heat-sensitive lithographic printing plate as described in claim 4, wherein the reactive group-containing hydrophobic compound has at least two of epoxy groups in the molecule.

9. The heat-sensitive lithographic printing plate as described in claim 4, wherein the reactive group-containing hydrophobic compound has at least two of radical-polymerizable ethylenic unsaturated groups.

10. The heat-sensitive lithographic printing plate as described in claim 9, wherein the radical-polymerizable ethylenic unsaturated group includes at least one of an acryloyl, methacryloyl, vinyl and allyl group.

11. The heat-sensitive lithographic printing plate as described in claim 1, wherein the reactive group-containing hydrophobic compound is a glycidyl ether compound obtained by reaction of a polyhydric alcohol or polyhydric phenol with epichlorohydrin or prepolymer thereof.

12. The heat-sensitive lithographic printing plate as described in claim 1, wherein the water-soluble compound has at least two reactive groups capable of reacting with the hydrophobic compound in the molecule.

13. The heat-sensitive lithographic printing plate as described in claim 12, wherein the at least two reactive groups include a radical-polymerizable ethylenic unsaturated group.

14. The heat-sensitive lithographic printing plate as described in claim 12, wherein the at least two reactive groups include a vinyloxy group.

15. The heat-sensitive lithographic printing plate as described in claim 12, wherein the at least two reactive groups include an epoxy group.

16. The heat-sensitive lithographic printing plate as

described in claim 1, wherein the water-soluble compound has at least one of an ethylene oxide chain and a propylene oxide chain in the molecule.

17. The heat-sensitive lithographic printing plate as described in claim 16, wherein the water-soluble compound has the at least one of an ethylene oxide chain and a propylene oxide chain in an amount of 1 to 40 units.

18. The heat-sensitive lithographic printing plate as described in claim 1, wherein the image-forming layer contains the water-soluble compound in an amount of 0.1 to 15 % by weight.

19. The heat-sensitive lithographic printing plate as described in claim 1, wherein the water-soluble compounds has a molecular weight of 2,000 or below.

20. The heat-sensitive lithographic printing plate as described in claim 1, wherein the image-forming layer further contains a hydrophilic resin.

21. The heat-sensitive lithographic printing plate as described in claim 1, wherein the image-forming layer further contains a reaction accelerator capable of initiating or accelerating the reaction between the reactive groups of the

hydrophobic compound and the water-soluble compound.

22. The heat-sensitive lithographic printing plate as described in claim 1, which further comprises an overcoat layer containing a water-soluble resin on the image-forming layer.